

THOMAS BAUMERT LAKE and NEW WASHINGTON CITY LAKE

Daviess County

2004 Fish Management Report

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2006

EXECUTIVE SUMMARY

- Thomas Baumert Lake and New Washington City Lake are both located in East Side Park on the eastern edge of Washington, Indiana. Each lake has a concrete boat ramp and ample shoreline fishing areas. Boaters may only use electric motors.
- Standard fisheries surveys were conducted at Thomas Baumert Lake and New Washington City Lake from July 26 to 27, 2004. Tier II aquatic vegetation sampling was conducted on July 26, 2004.
- At Thomas Baumert, largemouth bass were most abundant by number, followed by bluegill, warmouth, and redear sunfish. The bass electrofishing catch rate was 369.8 bass/h. The bluegill electrofishing catch rate was 118.6 bluegill/h. Bluegill 6.0 in and greater accounted for 49% of the sample. Submersed vegetation was found to a maximum depth of 8.0 ft. Brittle naiad was dominant and small pondweed was collected sporadically in low densities.
- At New Washington City Lake, bluegill were most abundant by number, followed by largemouth bass, warmouth, and black crappie. The bluegill electrofishing catch rate was 1,166.7 bluegill/h. The bass electrofishing catch rate was 335.6 bass/h. Submersed vegetation was found to a maximum depth of 3 ft. Brittle naiad was the dominant species in the lake, followed by bushy naiad and small pondweed.
- The Washington City Lakes are shallow eutrophic impoundments with the added complication of a resident waterfowl population. Water clarity is the primary limiting factor in preventing aquatic macrophytes from returning. Activities that encourage waterfowl to reside on the lakes should be prohibited. Treatment of rooted aquatic vegetation should be limited. Copper sulfate should be used in problem algae areas as necessary. The neighboring community should be encouraged to use phosphate-free lawn fertilizers. The Division of Fish and Wildlife should continue biennial channel catfish stockings at the lakes at a rate of 50 catfish/acre.

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INTRODUCTION

Thomas Baumert Lake and New Washington City Lake are both located in East Side Park on the eastern edge of Washington, Indiana. Thomas Baumert Lake is a 9-acre impoundment with a maximum depth of 12 ft. New Washington City Lake is a 10-acre impoundment with a maximum depth of 14 ft. The lakes are owned and maintained by the City of Washington, Parks and Recreation Department. Fisheries management is conducted by the Indiana Department of Natural Resources. Each lake has a concrete boat ramp and ample shoreline fishing areas. Boaters may only use electric motors.

Thomas Baumert Lake (formerly Old Washington City Lake) was originally created as a cooling lake for a small power plant. New Washington City Lake was constructed in 1967 as a water supply for Thomas Baumert Lake. The power plant is no longer operational and both lakes are now used for recreational purposes. The water level of New Washington City Lake is controlled by a drop tube and is approximately 25 ft above Baumert Lake. As a result, fish may move down into Baumert Lake but the reverse is not possible. In 1990, the lakes were renovated. Both lakes received the standard initial stocking of largemouth bass, bluegill, redear, and channel catfish. The lakes are currently stocked with channel catfish biennially at a rate of 25 catfish/acre.

The present surveys were conducted to assess the overall condition of the fisheries at Thomas Baumert Lake and New Washington City Park Lake. This report presents the survey results along with recommendations for future work.

METHODS

Standard fisheries surveys were conducted at Thomas Baumert Lake (Figure 1) and New Washington City Lake (Figure 2) from July 26 to 27, 2004, under the Division of Fish and Wildlife work plan number 204478. Sampling effort consisted of 0.43 h (Thomas Baumert Lake) and 0.45 h (New Washington City Lake) of pulsed DC night electrofishing with two dippers. Each lake was sampled with one overnight trap net set and one experimental gill net set. Fish were measured to the 0.1 in TL. Scale samples were taken from game species for age and growth analysis. District averages were used to estimate fish weight. Proportional Stock Density (PSD) was calculated for largemouth bass and bluegill (Anderson and Neumann 1996).

Water chemistry parameters were measured according to the Manual of Fisheries Survey Methods (Shipman, et al. 2001).

Tier II aquatic vegetation sampling was conducted on July 26, 2004 at both lakes according to Pearson (2003). A GPS unit was used to record the location of the limnological data and fish collection sites.

RESULTS

Thomas Baumert Lake

Water quality at Thomas Baumert Lake was poor at the time of the survey. The Secchi disk reading was only 2.0 ft. Dissolved oxygen was 3.5 parts per million (ppm) at the surface. The pH and alkalinity were within the normal ranges for this lake.

Submersed vegetation was found to a maximum depth of 8 ft. Brittle naiad was dominant and small pondweed was collected sporadically in low densities. Filamentous algae was collected and a blue-green algal bloom was noted. Creeping water primrose was also observed.

A total of 242 fish representing 9 species was collected during this survey. Total weight of the fish sample was approximately 132 lbs. Largemouth bass were most abundant by number (67%), followed by bluegill (22%), warmouth (7%), and redear sunfish (2%). Green sunfish, black crappie, channel catfish, black bullhead, and grass carp each accounted for less than 1% of the fish collected. By weight, largemouth bass ranked first (53%), followed by the single grass carp (37%), bluegill (6%), and channel catfish (2%). The remaining species each represented 1% or less of the total weight. Black crappie, black bullhead and grass carp were not collected in the previous survey (Sapp 2000).

The largemouth bass sample consisted of 161 fish ranging from 3.1 to 17.9 in TL. The electrofishing catch rate was 369.8 bass/h, compared to 207.3 bass/h in the previous survey. The bass PSD was 10. Only two harvestable size bass were collected. Growth was above average at age 1 and varied near average for bass ages 2 through 5. Bass growth was below average in 1999.

A total of 53 bluegill were collected that ranged in length from 2.2 to 8.4 in TL. The electrofishing catch rate was 118.6 bluegill/h, compared to 26.8 bluegill/h in the previous survey. The bluegill PSD was 52. Bluegill 6.0 in and greater accounted for 49% of the sample. Growth was above average for all ages.

Five redear sunfish were collected, ranging from 5.5 to 8.3 in TL. The warmouth sample consisted of 16 fish, ranging from 3.0 to 6.6 in TL. A single 49.0-in grass carp was collected that weighed approximately 50 lbs. Only one 19.8-in channel catfish was collected, likely from the 2002 fall stocking.

New Washington City Lake

Water quality at New Washington City Lake was poor for fish at the time of the survey. The Secchi disk reading was 1.9 ft. Dissolved oxygen was 4.0 ppm at the surface. The pH and alkalinity were within the normal ranges for this lake.

Submersed vegetation was found to a maximum depth of 3 ft. Brittle naiad was the dominant species in the lake, followed by bushy naiad and small pondweed. Filamentous algae was also collected and a blue-green algal bloom was noted. Creeping water primrose and duckweed were observed. Free-floating clusters of water-hyacinth, *Eichhornia crassipes*, were also found in the lake (Figure 1).

A total of 767 fish weighing approximately 100 lbs was collected that represented 8 species and 1 hybrid. Bluegill were most abundant by number (70%), followed by largemouth bass (20%), warmouth (7%), and black crappie (2%). Channel catfish, yellow bullhead, hybrid sunfish, redear sunfish, and smallmouth buffalo each accounted for less than 1% of the fish collected. By weight, largemouth bass ranked first (50%), followed by channel catfish (17%), the single smallmouth buffalo (14%), bluegill (11%), warmouth (5%), and black crappie (3%). The remaining species each represented less than 1% of the total weight. Three species collected in this survey: black crappie, yellow bullhead, and smallmouth buffalo were not present in the previous survey (Andrews 1994).

The bluegill sample consisted of 537 fish that ranged from 0.9 to 8.8 in TL. The electrofishing catch rate was 1,166.7 bluegill/h. The bluegill PSD was 20. Growth was average to above average for all ages.

A total of 155 largemouth bass was collected that ranged from 2.5 to 14.6 in TL. The electrofishing catch rate was 335.6 bass/h. Only one harvestable size bass was collected. The bass PSD was 33. Growth was above average at age 1 and average for bass ages 2 through 4.

Fifty-one warmouth were collected that ranged from 1.3 to 7.6 in TL. A total of 12 black crappie was collected, ranging from 2.5 to 13.7 in TL. The channel catfish sample consisted of five fish ranging from 15.9 to 27.1 in TL.

DISCUSSION

Thomas Baumert Lake

Thomas Baumert Lake has an excellent bluegill fishery. At the time of the survey, 49% of the bluegill were 6.0 in and greater in length. The bluegill catch rate (118.6 bluegill/h) was up from the 1999 survey (26.8 bluegill/h) and growth remains above average. Lack of aquatic vegetation to harbor bluegill from bass predation and high angler exploitation is driving the 3:1 largemouth bass to bluegill ratio. The large number of bass is exerting pressure on panfish species and bullheads. Surprisingly, bass growth remains good, indicating bass are not forage limited. Harvest of legal bass and the presence of sufficient forage are sustaining a proportionally larger number of bass.

Redear and warmouth are also contributing to the panfish catch at Thomas Baumert. Only one channel catfish was collected in the survey, indicating the fishery is being utilized and benefits from the biennial stockings of 50 catfish/acre.

In 2000, Sapp recommended removal of grass carp from Thomas Baumert because of over grazing of rooted macrophytes. It is not clear how many of the 120 grass carp stocked in 1993 remain in the lake. However, at this age, their appetite would be sharply reduced along with their ability to control vegetation. Water clarity is the primary limiting factor preventing aquatic macrophytes from returning.

New Washington City Lake

New Washington City Lake provides good panfish and bass fishing opportunities. Angler exploitation is promoting good growth for both bass and bluegill. Bluegill are reaching 7.0 in TL in three years. Warmouth and black crappie are also contributing to the panfish catch. This survey included 299 young of the year (YOY) bluegill, ranging from 0.9 to 1.6 in TL. The YOY bluegill, along with the strong 2003 year class, are a good indication that there is sufficient bluegill reproduction for bass forage.

Five channel catfish were collected in the survey, ranging in length from 15.9 to 27.1 in TL. The fishery is being utilized and benefits from the biennial stockings at 50 catfish/acre. New Washington City Lake will continue to provide good angling opportunities.

Water-hyacinth was collected at New Washington City Lake in the southeastern most bay. Water-hyacinth is a floating exotic plant, native to South America. The plant is popular in

water gardens and can be purchased from many lawn-and-garden and pet stores. Water-hyacinth was likely introduced by a patron of the lake. All of the plants were removed and the City of Washington, Parks and Recreation Department was notified of the collection.

Summary

The Washington City lakes are shallow, eutrophic impoundments with the added complication of a resident waterfowl population. The poor water quality was not unexpected on a cloudy day in late July. Both lakes frequently experience low light transparency, evidenced by the Secchi depths. Aquatic vegetation was only found down to 3 ft at New Washington City Lake. A few sprigs of brittle naiad were collected at 8 ft at Thomas Baumert Lake. The plants were brown and in poor condition. Algae thrive in these conditions. Filamentous and blue-green algae were present at the time of the survey in both lakes.

The City of Washington has installed a fountain at Thomas Baumert Lake for aeration in hopes of increasing the digestion process of excess nutrients. However, unless the source(s) of the nutrients are eliminated, the aeration system will have little impact on the water quality. Waterfowl are continually adding to the nutrient load of the lakes. Activities that encourage waterfowl to reside on the lakes should be prohibited. Additionally, a higher density of rooted vegetation can increase water quality by binding up excess nutrients. Treatment of rooted aquatic vegetation at both lakes should be limited to spot treatments at boat ramps, paddleboat docks, channels at Thomas Baumert, and fishing piers. Copper sulfate should be used in problem algae areas as necessary. The neighboring community should also be made aware of the impact phosphate-containing lawn fertilizers can have on a lake system. Using phosphate free lawn fertilizers should be encouraged.

RECOMMENDATIONS

- The City of Washington, Parks and Recreation Department should prohibit activities that encourage waterfowl to reside on the lakes.
- The City of Washington, Parks and Recreation Department should limit treatment of rooted aquatic vegetation to spot treatments at boat ramps, paddleboat docks, channels at Thomas Baumert, and fishing piers. Copper sulfate should be used in problem algae areas as necessary.
- The City of Washington, Parks and Recreation Department should encourage the neighboring community to use phosphate-free lawn fertilizers.

- The Division of Fish and Wildlife should continue biennial channel catfish stockings at Thomas Baumert and New Washington City Lakes at a rate of 50 catfish/acre.

LITERATURE CITED

- Anderson, R. O. and R. M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-481 *in* B. R. Murphy and D. W. Willis, editors. Fisheries Techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.
- Andrews, Steven J. 1994. New Washington City Lake. 1993 Fish Management Report. Indiana Department of Natural Resources, Indianapolis, IN. 12pp.
- Andrews, Steven J. 1994. Thomas Baumert Lake. 1993 Fish Management Report. Indiana Department of Natural Resources, Indianapolis, IN. 12pp.
- Andrews, Steven J. 1987. New Washington City Lake. 1987 Fish Management Report. Indiana Department of Natural Resources, Indianapolis, IN 12pp.
- Florida Department of Environmental Protection, Bureau of Invasive Plant Management and the University of Florida, Center of Aquatic Invasive Plants. (n.d.). Retrieved February 2, 2006, from <http://www.dep.state.fl.us/lands/invaspec/index.htm>.
- Sapp, Shawn A., 2000. Thomas Baumert Lake. 1999 Fish Management Report. Indiana Department of Natural Resources, Indianapolis, IN. 12pp.
- Shipman, S., E. Braun, D. Carnahan, L. Koza, B. Schoenung, D. Keller, D. Kittaka, and T. Stefanavage, 2001. Manual of Fisheries Survey Methods. Indiana Department of Natural Resources, Indianapolis, IN. 67pp.
- Water Gardens and Introduced Species, US Fish & Wildlife Services. (2002). Retrieved February 2, 2006 from <http://www.anstaskforce.gov/Education/Water%20gardens%20final%20from%20RO.pdf>.

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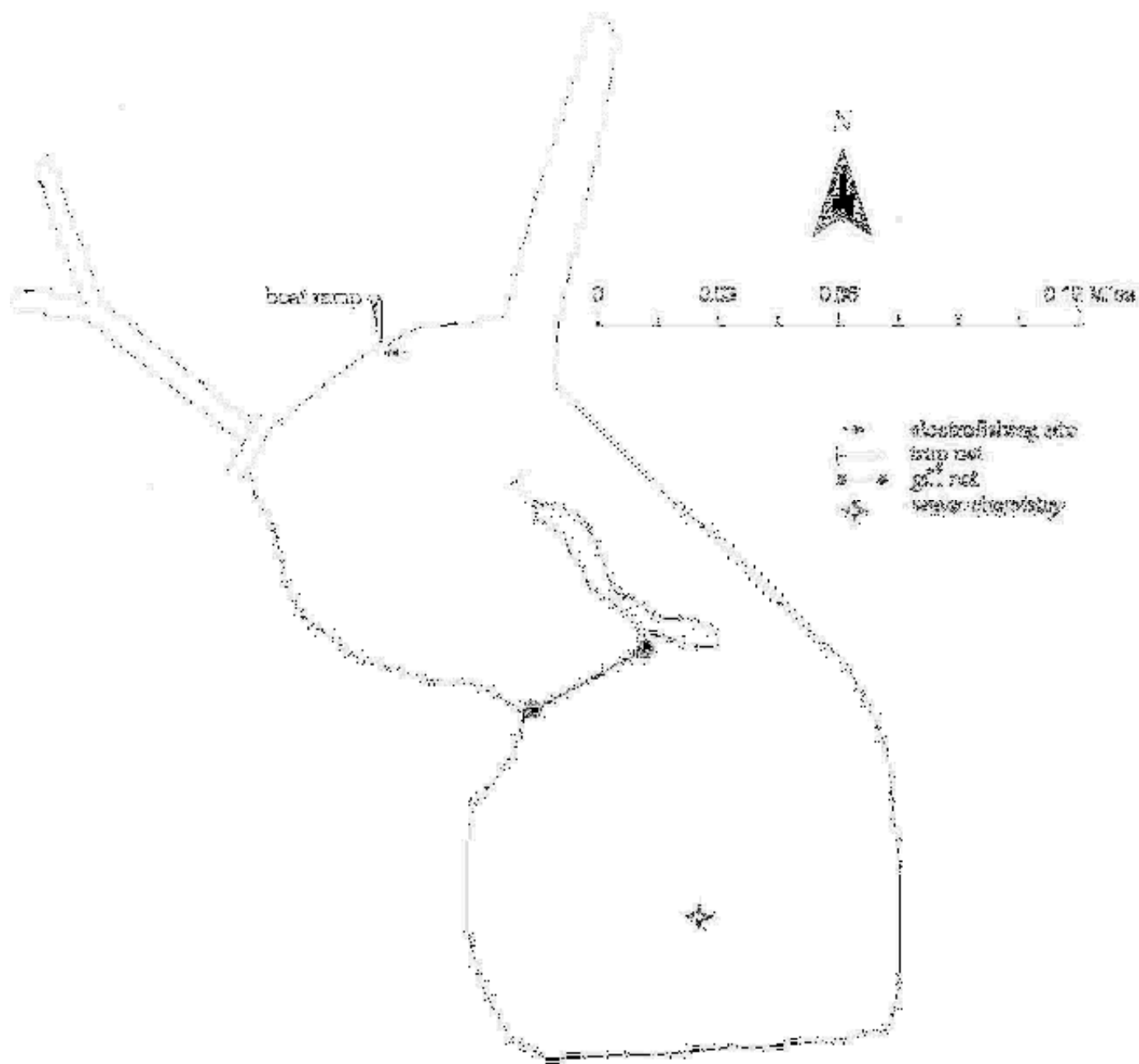


Figure 1. Thomas Baumert Lake, Daviess County. Location of water chemistry, gill net, trap net, and electrofishing station, 2004.

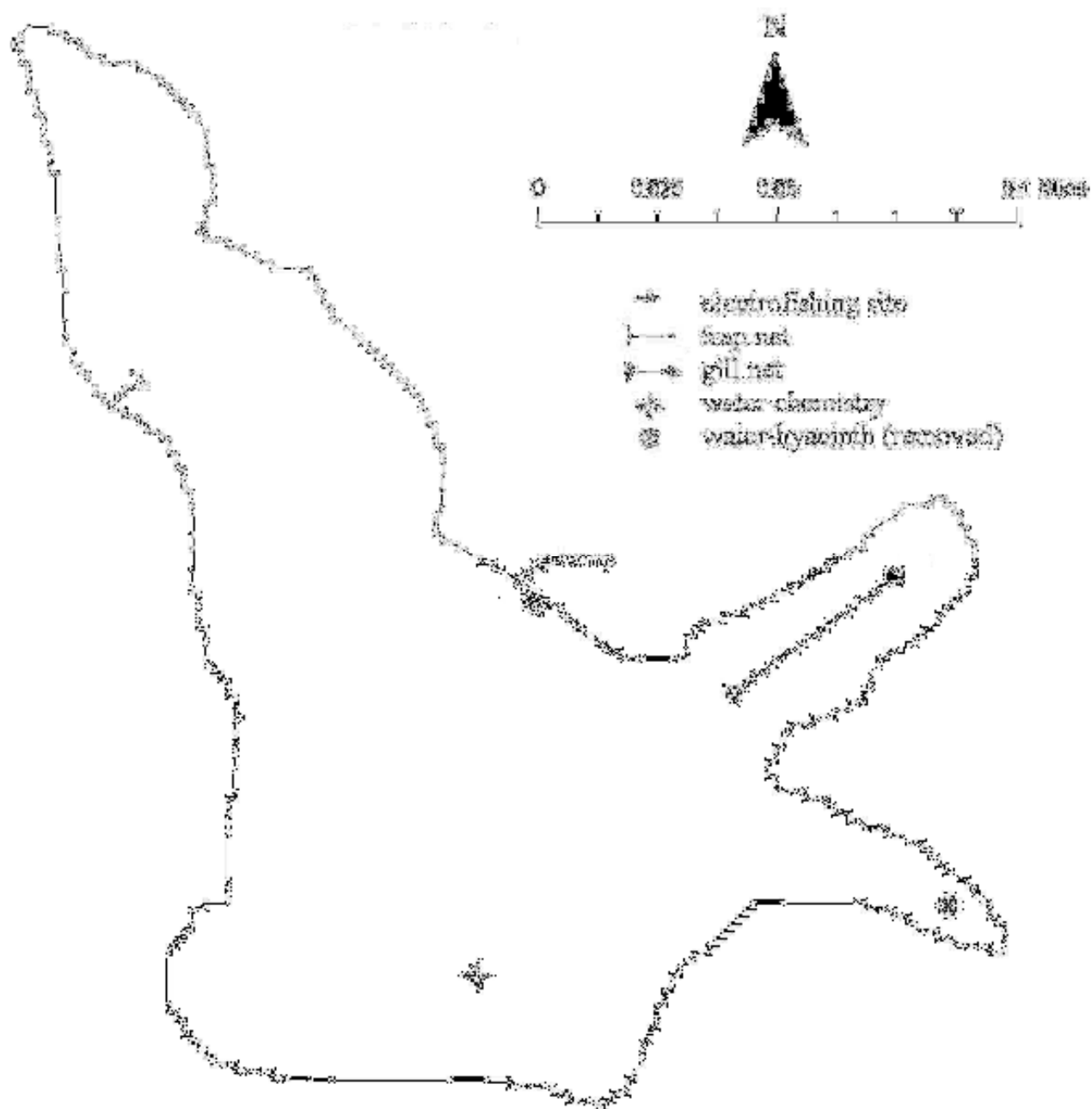


Figure 2. New Washington City Lake, Daviess County. Location of water chemistry, gill net, trap net, electrofishing station, and water-hyacinth collection, 2004.